

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY


(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 20 MAR 2006

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Applicant's or agent's file reference B03/0652PC/jw		<b>FOR FURTHER ACTION</b>		See Form PCT/PEA/416
International application No. PCT/EP2004/014536		International filing date (day/month/year) 21.12.2004		Priority date (day/month/year) 22.12.2003
International Patent Classification (IPC) or national classification and IPC D06M15/263, D06M15/29, D06M15/273, D06M15/564, D06M15/568, D06M15/19, A01N25/10				
Applicant BASF AKTIENGESELLSCHAFT et al.				
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 8 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau) a total of 16 sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input checked="" type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>				
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input checked="" type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability .</p> <p><input checked="" type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input checked="" type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application</p>				
Date of submission of the demand  04.11.2005			Date of completion of this report  17.03.2006	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465			Authorized Officer  Marie, G  Telephone No. +49 89 2399-2571	



**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/EP2004/014536

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**Box No. I Basis of the report**

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1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
  - ☐ publication of the international application (under Rule 12.4)
  - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

**Description, Pages**

1-51 as originally filed

**Claims, Numbers**

1-33 received on 08.11.2004 with letter of 04.11.2004

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):
4. ☒ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
  - ☒ the claims, Nos. 16,29
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

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**Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

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1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application,

☒ claims Nos. 4,5,16,29-33

because:

☒ the said international application, or the said claims Nos. 16,29 relate to the following subject matter which does not require an international preliminary examination (specify):

**see separate sheet**

☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☒ no international search report has been established for the said claims Nos. 4,5,30-33

☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:

the written form

☐ has not been furnished

☐ does not comply with the standard

the computer readable form

☐ has not been furnished

☐ does not comply with the standard

☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-*bis* of the Administrative Instructions.

☐ See separate sheet for further details

# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.  
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## Box No. IV Lack of unity of invention

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1. ☒ In response to the invitation to restrict or pay additional fees, the applicant has:
- ☒ restricted the claims.
  - ☒ paid additional fees.
  - ☐ paid additional fees under protest.
  - ☐ neither restricted nor paid additional fees.
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is
- ☐ complied with.
  - ☐ not complied with for the following reasons:
4. Consequently, this report has been established in respect of the following parts of the international application:
- ☒ all parts.
  - ☐ the parts relating to claims Nos. .

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## Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

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1. Statement

Novelty (N)	Yes: Claims	1-3, 6-15 and 17-28
	No: Claims	-
Inventive step (IS)	Yes: Claims	1-3, 6-15 and 17-28
	No: Claims	-
Industrial applicability (IA)	Yes: Claims	1-3, 6-15 and 17-28
	No: Claims	-

2. Citations and explanations (Rule 70.7):

**see separate sheet**

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## Box No. VII Certain defects in the international application

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The following defects in the form or contents of the international application have been noted:

**see separate sheet**

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

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International application No.  
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**Box No. VIII    Certain observations on the international application**

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The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**

As a general remark and in the Applicant's interest, the Searching Authority wishes to emphasize that quality substantive examination can only be achieved if and when the application itself reaches a certain standard.

The documents to which this examination report refers are numbered in their order of appearance in the international search report.

**Re Item III**

**Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

1. The subject-matter of claims 4, 5 and 30 to 33 falls out of the scope of the subject-matter which has been searched. Indeed, the subject-matter of said claims comprises an acrylic binder in which component B1B is not present.  
For that reason, said subject-matter will not be examined (Rules 66.1(e) and 70.2(d) PCT).
2. The subject-matter of claims 16 and 29 does not comply with the requirements of Article 34(2)(b) PCT for the following reasons:
  - 2.1 The subject-matter of claim 16 is not based on the description *page 28, lines 17 to 34*. Indeed, according to said passage of the description:
    - the lower range value corresponding to the weight of the textile or plastics material is 0.01% not 0.001%;
    - the preferred range corresponding to the weight of the insecticide and/or repellent is 0.1 to 6% only in the special case where a pyrethroid is used.
  - 2.2 The subject-matter of claim 29 is not based on the description *page 35, lines 8-9* because claim 29 refers to the temperature at which to step iv) of the process according to claim 17 which comprises drying and curing of the textile or plastics material has to be carried out, whereas said passage of the description only refers to curing. In addition, it is stated in said paragraph that the drying step is performed at a different temperature.

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

The subject-matter of inventions II and III as defined in the Written Opinion of the International Search Authority has been removed from the present set of claims by the Applicant.

**1. Novelty (Article 33(2) PCT)**

Documents **D1-D4** (see cited parts in the international search report) concern compositions for impregnation of fabric materials and/or nettings comprising an insecticide and/or a repellent and a polyacryl (**D1**), a copolymer of butyl-acrylate (**D2**) or an acrylic copolymer (**D3&D4**). The structure of the acryl derivative in those documents is either different from the present acrylic binder or not clearly specified. The present subject-matter claimed, as far as claims 1-3, 6-15 and 17-28 are concerned, is therefore new over said prior art documents.

**2. Inventive step (Article 33(3) PCT)**

None of the cited documents, in particular **D1-D4**, suggest that the present specific acrylic binders can increase the insecticidal and repellent properties of the composition in terms of wash resistance and killing efficiency even when low amounts of insecticides are used.

The present invention as claimed, as far as claims 1-3, 6-15 and 17-28 are concerned, seems therefore to involve an inventive step.

**3. Industrial applicability (Article 33(4) PCT)**

Industrial applicability of the subject-matter as claimed, as far as claims 1-3, 6-15 and 17-28 are concerned, is acknowledged.

**Re Item VII**

**Certain defects in the application (form or content)**



1. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in D4 is not mentioned in the description, nor is this document identified therein.
2. Biological names should be written in italics.
3. In some parts of the specification, words and expressions are written in german.

**Re Item VIII**

**Certain observations on the international application (clarity)**

1. In claim 6, the nature of the insecticide and the repellent is specified. However, further pesticides (molluscicides, rodenticides and fungicides) are given therein. Such a discrepancy leads to a lack of clarity and casts a doubt on the matter for which protection is sought (Article 6 PCT).  
The same applies to claims 13, 17 and 19.
2. The use of the term "*about*" in claim 9 and in the description renders the subject-matter unclear within the meaning of Article 6 PCT (see also PCT Guidelines 5.38).
3. In claims 8, 20 and 23, the term "*biozides*" is not properly written.
4. The subject-matter of claim 13 should have referred to claim 12 not to claim 10.
5. In claim 6 (new *page 60, line 8*), the expressions that follow the word "*like*" are regarded as optional and are therefor not restrictive.
6. Claim 30 refers to claim 5. Its subject-matter defines the nature of the textile material or plastics although claim 5 does not mention said technical feature.
7. On new *page 55, line 1*, "*b1b*" should replace "*b2b*".



## Amended Claims

1. An insecticide or repellent composition for application to a textile material or plastics material which composition comprises a mixture including

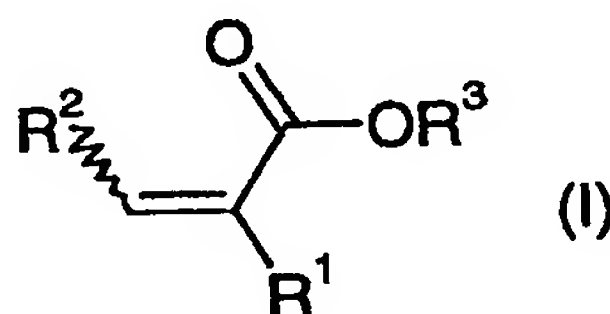
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- a) at least one insecticide and/or at least one repellent as component A, and  
b1) at least one acrylic binder as component B1 obtainable by emulsion polymerisation of the following components:

10

b1a) n-butyl acrylate as component B1A,

b1b) at least one monomer of formula I as component B1B



wherein

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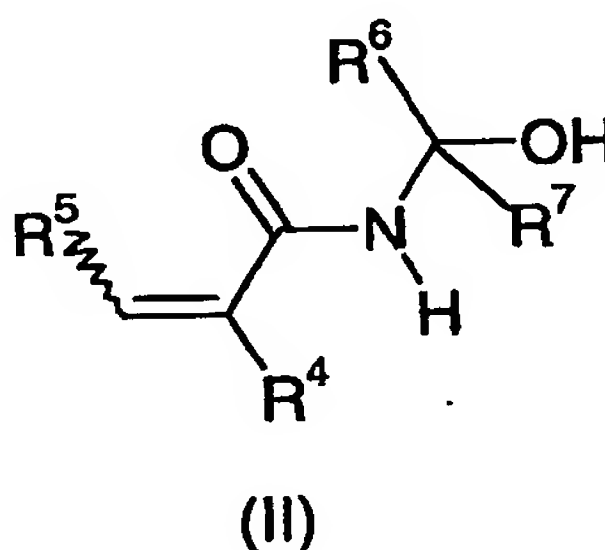
R<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> are independently selected from C<sub>1</sub>- to C<sub>10</sub>-alkyl which may be linear or branched; substituted or unsubstituted aryl;

R<sup>1</sup> and R<sup>2</sup> may further be H;

except of R<sup>3</sup> = n-butyl, when R<sup>1</sup> and R<sup>2</sup> are H;

20

- b1c) at least one monomer of formula II as component B1C



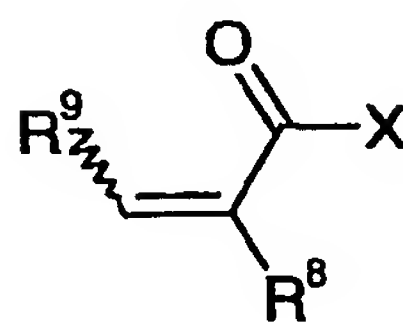
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wherein

R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup> and R<sup>7</sup> are independently selected from the group consisting of H, C<sub>1</sub>- to C<sub>10</sub>-alkyl which may be linear or branched; substituted or unsubstituted aryl;

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- b1d) optionally at least one monomer of formula III as component B1D

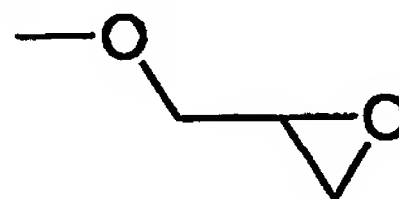


(III)

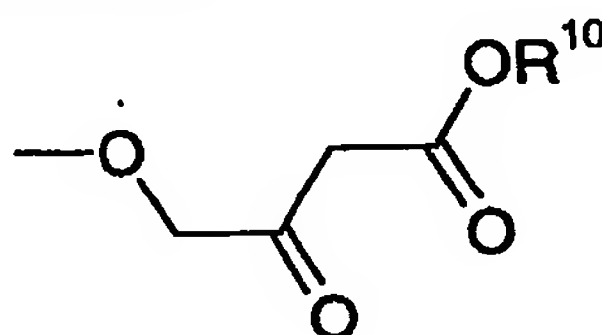
wherein

$R^8$  and  $R^9$  are independently selected from the group consisting of H,  $C_1$ - to  $C_{10}$ -alkyl which may be linear or branched; substituted or unsubstituted aryl;

X is selected from the group consisting of H, OH,  $NH_2$ ,  $OR^{11}$ OH, glycidyl, hydroxypropyl,



groups of the formula



wherein

$R^{10}$  is selected from the group consisting of  $C_1$ - to  $C_{10}$ -alkyl which may be branched or linear; substituted or unsubstituted aryl;

$R^{11}$  is selected from the group consisting of  $C_1$ - to  $C_{10}$ -alkylene; substituted or unsubstituted arylenes;

b1e) optionally further monomers which are copolymerizable with the monomers mentioned above selected from

b1e1) polar monomers as component B1E1;  
and/or

b1e2) non polar monomers as component B1E2.

2. The insecticide or repellent composition as claimed in claim 1, wherein the acrylic binder is obtainable by emulsion polymerization of the following components:

b1a) 10 to 90% by weight, preferably 15 to 80% by weight, more preferably 20 to 70% by weight of component B1A;

- 5           b1b) 10 to 90% by weight, preferably 12 to 85% by weight, more preferably 15 to 65% by weight of component B1B;  
          b1c) 1 to 5 % by weight of component B1C;  
          b1d) 0 to 5 % by weight, preferably 1 to 4 % by weight, more preferably 0.2 to 3% by weight of component B1D;  
          b1e) further monomers which are copolymerizable with the monomers mentioned above selected from  
                b1e1) 0 to 30 % by weight, preferably 0 to 25 % by weight, more preferably 5 to 20 % by weight of component B1E1; and/or  
10           b1e2) 0 to 40 % by weight, preferably 0 to 30 % by weight, more preferably 5 to 20 % by weight of component B1E2;

15           wherein the sum of the components B1A, B1B, B1C and optionally B1D and B1E is 100 % by weight.

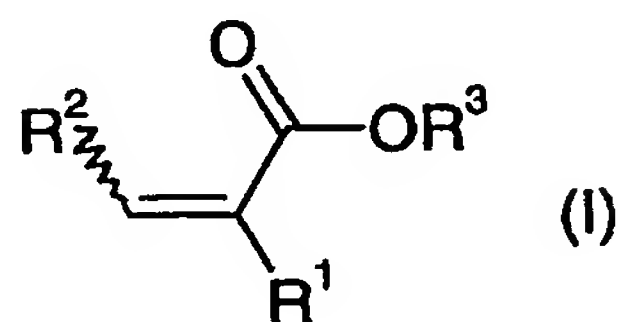
3.       The insecticide or repellent composition as claimed in claim 1, wherein the acrylic binder is obtainable by emulsion polymerization of the following components:

- 20           b1a) 30 to 85% by weight of component B1A;  
          b1b) 10 to 90% by weight, preferably 12 to 85% by weight, more preferably 15 to 65% by weight of component B1B;  
          b1c) 1 to 5 % by weight of component B1C;  
          b1d) 0 to 5 % by weight, preferably 1 to 4 % by weight, more preferably 0.2 to 3% by weight of component B1D;  
25           b1e) further monomers which are copolymerizable with the monomers mentioned above selected from  
                b1e1) 0 to 30 % by weight, preferably 0 to 25 % by weight, more preferably 5 to 20 % by weight of component B1E1; and/or  
                b1e2) 0 to 40 % by weight, preferably 0 to 30 % by weight, more preferably 5 to 20 % by weight of component B1E2;  
30

          wherein the sum of the components B1A, B1B, B1C and optionally B1D and B1E is 100 % by weight.

- 35       4.       An insecticide or repellent composition for application to a textile material or plastics material which composition comprises a mixture including  
          a) at least one insecticide and/or repellent as component A, and  
          b) at least one acrylic binder as component B1 obtainable by emulsion polymerization of the following components:  
40           b1a) 30 to 85 % by weight of n-butylacrylate as component B1A;

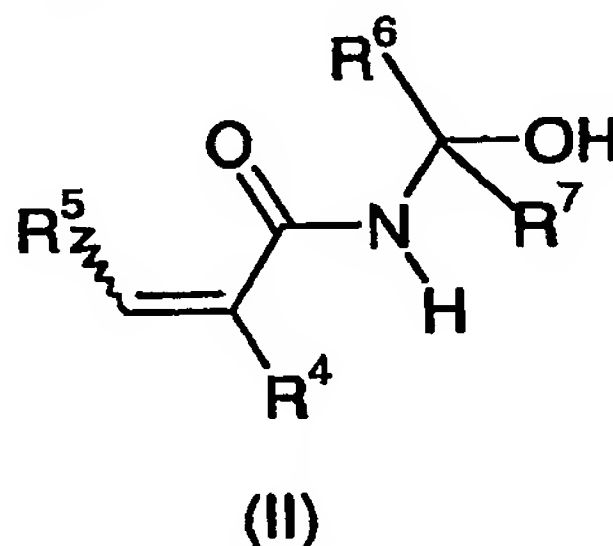
b2b) 0 to 65 % by weight of at least one monomer of formula I as component B1B



wherein

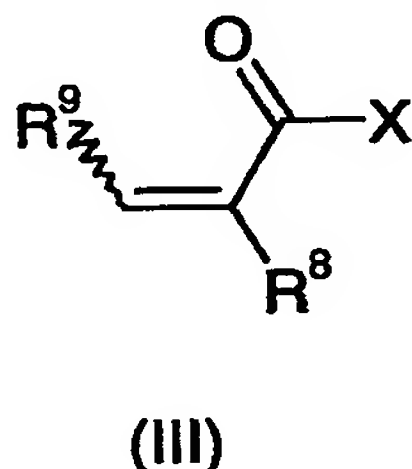
R<sup>1</sup> is H or methyl, R<sup>2</sup> is H and R<sup>3</sup> is methyl, ethyl, or 2-ethylhexyl, as component B1B, most preferably component B1B is 2-ethylhexylacrylate, methylacrylate, methylmethacrylate or ethylacrylate;

b1c) 1 to 5 % by weight of at least one monomer of formula II

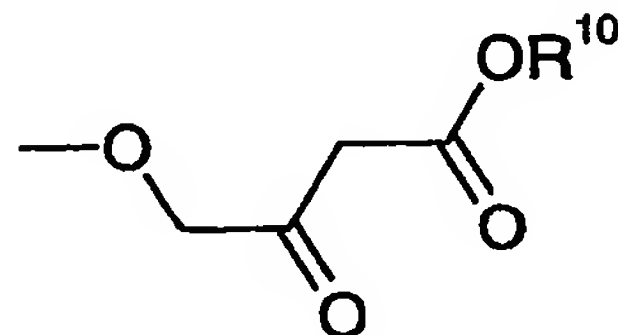


wherein R<sup>4</sup> is H or methyl, R<sup>5</sup>, R<sup>6</sup> and R<sup>7</sup> each are H as component B1C;

b1d) 1 to 10 % by weight, preferably 1 to 7 % by weight, more preferably 2 to 5 % by weight of at least one monomer of formula III



wherein R<sup>8</sup> and R<sup>9</sup> are H and X is H, OH, NH<sub>2</sub>, OR<sup>11</sup>OH, glycidyl or a group of the formula



wherein

R<sup>10</sup> is selected from the group consisting of C<sub>1</sub>- to C<sub>10</sub>-alkyl which may be branched or linear, for example methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, sec-butyl, tert-butyl, n-pentyl, i-pentyl, sec-pentyl, neo-pentyl, 1,2-dimethylpropyl,

5 i-amyl, n-hexyl, i-hexyl, sec-hexyl, n-heptyl, n-octyl, 2-ethylhexyl, n-nonyl, n-decyl; preferably C<sub>1</sub>- to C<sub>4</sub>-alkyl, which may be branched or linear, for example methyl, ethyl, n-propyl, iso-propyl, n-butyl, iso-butyl, sec-butyl and tert-butyl; substituted or unsubstituted aryl, preferably substituted or unsubstituted C<sub>6</sub>- to C<sub>10</sub>-aryl, more preferably substituted or unsubstituted C<sub>6</sub>-aryl, for example phenyl or tolyl;

10 R<sup>11</sup> is selected from the group consisting of C<sub>1</sub>- to C<sub>10</sub>-alkylene, for example methylene, ethylene, propylene, butylene, pentylene, hexylene, heptylene, octylene, nonylene, decylene; preferably C<sub>1</sub>- to C<sub>4</sub>-alkylene, for example methylene, ethylene, propylene, butylenes; substituted or unsubstituted arylenes, preferably substituted or unsubstituted C<sub>6</sub>- to C<sub>10</sub>-arylene, more preferably substituted or unsubstituted C<sub>6</sub>-arylene, for example phenylene;

15 as component B1D, most preferably X is acetoacetyl;

b1e) further monomers which are copolymerizable with the monomers mentioned above selected from

20 b1e1) 0 to 30 % by weight, preferably 0 to 25 % by weight, more preferably 5 to 20 % by weight of component B1E1, preferably (meth)acrylic nitrile and/or methyl(meth)acrylate;

and/or

b1e2) 0 to 40 % by weight, preferably 0 to 30 % by weight, more preferably 5 to 20 % by weight of component B1E2, preferably styrene and/or a-methylstyrene;

25 wherein the sum of components B1A, B1B, B1C and optionally B1D and B1E is 100 % by weight.

5. An insecticide or repellent composition as claimed in claim 4, wherein component B1 is obtainable by emulsion polymerization of the following components:

30 b1a) 81.0 % by weight of n-butylacrylate as component B1A;

b1c) 2.0 % by weight of N-methylol methacrylamide as component B1C;

b1d) 1.0 % by weight of acrylic acid as component B1D;

b1e1) 16 % by weight of acrylic nitril as component B1E1.

35 6. The insecticide or repellent composition as claimed in any of claims 1 to 5, wherein the insecticide is selected from pyrethroid compounds, preferably

Etofenprox: 2-(4-ethoxyphenyl)-2-methylpropyl-3-phenoxybenzyl ether,

40 Chlorfenapyr: 4-bromo-2-(4-chlorophenyl)-1-ethoxymethyl-5-(trifluoromethyl)-pyrrole-3-carbonitrile,

- Fenvalerate: (RS)-alpha-cyano-3-phenoxybenzyl (RS)-2-(4-chlorophenyl)-3 methylbutyrate,
- Esfenvalerate: (S)-alpha-cyano-3-phenoxybenzyl (S)-2-(4-chlorophenyl)-3-methylbutyrate,
- 5 Fenpropathrin: (RS)-alpha-cyano-3-phenoxybenzyl 2,2,3,3-tetramethylcyclopropane-carboxylate,
- Cypermethrin: (RS)-alpha-cyano-3-phenoxybenzyl (1RS)-cis, trans-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate,
- 10 alpha-Cypermethrin: racemate comprising the (S)- $\alpha$ -(1R) and (R)- $\alpha$ -(1S) diastereomers,
- Permethrin: 3-phenoxybenzyl (1RS)-cis, trans-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate,
- Cyhalothrin: (RS)-alpha-cyano-3-phenoxybenzyl (Z)-(1RS)-cis-3-(2-chloro-3,3,3-trifluoroprop-1-enyl)-2,2-dimethylcyclopropanecarboxylate, lambda-cyhalothrin,
- 15 Deltamethrin: (S)-alpha-cyano-3-phenoxybenzyl (1R)-cis-3-(2,2-dibromovinyl)-2,2-dimethylcyclopropanecarboxylate,
- Cycloprothrin: (RS)-alpha-cyano-3-phenoxybenzyl (RS)-2,2-dichloro-1-(4-ethoxyphenyl)cyclopropanecarboxylate,
- Fluvalinate: alpha-cyano-3-phenoxybenzyl N-(2-chloro-alpha, alpha, alpha, alpha-trifluoro-p-tolyl)-D-valinate,
- 20 Bifenthrin: (2-methylbiphenyl-3-ylmethyl)0(Z)-(1RS)-cis-3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropanecarboxylate,
- 2-methyl-2-(4-bromodifluoromethoxyphenyl)propyl (3-phenoxybenzyl)ether,
- Tralomethrin: (S)-alpha-cyano-3-phenoxybenzyl (1R-cis)3((1'RS)(1', 2', 2', 2'-tetrabromoethyl))-2,2-dimethylcyclopropanecarboxylate,
- 25 Silafluofen: 4-ethoxyphenyl(3-(4-fluoro-3-phenoxyphenyl)propyl)dimethylsilane,
- D-fenothrin: 3-phenoxybenzyl (1R)-cis, trans)-chrysanthemate,
- Cyphenothrin: (RS)-alpha-cyano-3-phenoxybenzyl (1R-cis, trans)-chrysanthemate, D-resmethrin: 5-benzyl-3-furylmethyl (1R-cis, trans)-chrysanthemate,
- 30 Acrinathrin: (S)-alpha-cyano-3-phenoxybenzyl (1R-cis(Z))-(2,2-dimethyl-3-(oxo-3-(1,1,1,3,3,3-hexafluoropropoxy)propenyl)cyclopropanecarboxylate,
- Cyfluthrin: (RS)-alpha-cyano-4-fluoro-3-phenoxybenzyl 3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate,
- 35 Tefluthrin: 2,3,5,6-tetrafluoro-4-methylbenzyl (1RS-cis (Z))-3-(2-chloro-3,3,3-trifluoro-prop-1-enyl)-2,2-dimethylcyclopropanecarboxylate,
- Transfluthrin: 2,3,5,6-tetrafluorobenzyl (1R-trans)-3-(2,2-dichlorovinyl)-2,2-dimethyl-cyclopropanecarboxylate,
- Tetramethrin: 3,4,5,6-tetrahydrophthalimidomethyl (1RS)-cis, trans-chrysanthemate,
- 40



- Allethrin: (RS)-3-allyl-2-methyl-4-oxocyclopent-2-enyl (1RS)-cis, trans-chrysanthemate,
- Prallethrin: (S)-2-methyl-4-oxo-3-(2-propynyl)cyclopent-2-enyl (1R)-cis, trans-chrysanthemate,
- 5 Empenthrin: (RS)-1-ethynyl-2-methyl-2-pentenyl (1R)-cis,trans-chrysanthemate,
- Imiprothrin: 2,5-dioxo-3-(prop-2-ynyl)imidazolidin-1-ylmethyl (1R)-cis, trans-2,2-dimethyl-3-(2-methyl-1-propenyl)-cyclopropanecarboxylate,
- D-flamethrin: 5-(2-propynyl)-furfuryl (1R)-cis, trans-chrysanthemate, and 5-(2-propynyl)furfuryl 2,2,3,3-tetramethylcyclopropanecarboxylate;
- 10 Pyriproxyfen: 4-phenoxyphenyl (RS)-2-(2-pyridyloxy)propyl ether; pyrethrum;
- d-d, trans-cyphenothrin: (RS)- $\alpha$ -cyano-3-phenoxybenzyl (1RS,3RS;1RS,3SR)-2,2-dimethyl-3-(2-methylprop-1-enyl)cyclopropanecarboxylate;
- DDT;
- 15 Carbamate compounds, preferably
- Alanycarb: S-methyl-N[[N-methyl-N-[N-benzyl-N(2-ethoxy-carbonylethyl)amino-thio]carbamoyl]thioacetimidate,
- Bendiocarb: 2,2-dimethyl-1,3-benzodioxol-4-yl-methylcarbamate),
- 20 Carbaryl(1-naphthyl N-methylcarbamate,
- Isoprocab: 2-(1-methylethyl)phenyl methylcarbamate,
- Carbosulfan: 2,3 dihydro-2,2-dimethyl-7-benzofuranyl[(dibutylamino)thio]methylcarbamate,
- Fenoxycarb: Ethyl[2-(4-phenoxyphenoxy)ethyl]carbamate,
- 25 Indoxacarb: Methyl-7-chloro-2,2,3,4<sup>o</sup>,5-tetrahydro-2-[methoxycarbonyl (-4-trifluoromethoxyphenyl)]
- Propoxur: 2-isopropoxyphenol methylcarbamate,
- Pirimicarb: 2-dimethylamino-5,6-dimethyl-4-pyrimidinyl-dimethylcarbamate,
- Thiodiocarb: Dimethyl
- 30 N,N'-(thiobis((methylimino)carbonoyloxy)bisethanimidiodithioate);
- Methomyl: S-methyl N-((methylcarbamoxy)oxy)thioacetamidate,
- Ethiofencarb: 2-((ethylthio)methyl)phenyl methylcarbamate,
- Fenothiocarb: S-(4-phenoxybutyl)-N,N-dimethyl thiocarbamate,
- Cartap: S,S'-(2-5 dimethylamino)trimethylene)bis (thiocarbamate)hydrochloride,
- 35 Fenobucarb: 2-sec-butylphenylmethyl carbamate,
- XMC: 3,5-dimethylphenyl-methyl carbamate,
- Xylcarb: 3,4-dimethylphenylmethylcarbamate;
- organophosphorous compounds, preferably
- 40 Trichlorfon: Phosphoric acid, (2,2,2-trichloro-1-hydroxyethyl)-, dimethyl ester



- Fenitrothion: O,O-dimethyl O-(4-nitro-m-tolyl)phosphorothioate,  
Diazinon: O,O-diethyl-O-(2-isopropyl-6-methyl-4-pyrimidinyl)phosphorothioate,  
Pyridaphenthion: O-(1,6-dihydro-6-oxo-1-phenylpyrazidin-3-yl) O,O-diethyl phosphorothioate,  
5 Pirimiphos-Etyl: O,O-diethyl O-(2-(diethylamino)6-methyl-pyrimidinyl)phosphorothioate, Pirimiphos-Methyl: O-[2-(diethylamino)-6-methyl-4-pyrimidinyl] O,O-dimethyl phosphorothioate,  
Etrimphos: O-6-ethoxy-2-ethyl-pyrimidin-4-yl-O,O-dimethyl-phosphorothioate,  
Fenthion: O,O-dimethyl-O-[3-methyl-4-(methylthio)phenyl phosphorothioate,  
10 Phoxim: 2-(diethoxyphosphinothioxyimino)-2-phenylacetonitrile,  
Chlorpyrifos: O,O-diethyl-O-(3,5,6-trichloro-2-pyridinyl)phosphorothioate,  
Chlorpyrifosmethyl: O,O-dimethyl O-(3,5,6-trichloro-2-pyridinyl)phosphorothioate,  
Cyanophos: O,O-dimethyl O-(4 cyanophenyl)phosphorothioate,  
15 Pyraclofos: (R,S)[4-chlorophenyl]-pyrazol-4-yl]-O-ethyl-S-n-propyl phosphorothioate,  
Acephate: O, S-dimethyl acetylphosphoroamidothioate,  
Azamethiphos: S-(6-chloro-2,3-dihydro-oxo-1,3-oxazolo[4,5-b]pyridine-3-yl)methyl phosphorothioate,  
20 Malathion: O,O-dimethyl phosphorodithioate ester of diethyl mercaptosuccinate,  
Temephos: (O,O'(thiodi-4-1-phenylene) O,O,O,O-tetramethyl phosphorodithioate,  
Dimethoate: ((O,O-dimethyl S-(n-methylcarbamoyl)ethyl)phosphorodithioate,  
Formothion: S[2-formylmethylamino]-2-oxoethyl]-O,O-dimethyl phosphorodithioate,  
25 Phenthoate: O,O-dimethyl S-(alpha-ethoxycarbonylbenzal)-phosphorodithioate;  
Iodofenphos: O-(2,5-dichloro-4-iodophenyl)-O,O-dimethyl-phosphorothioate;

- Insecticides with a sterilising effect on adult mosquitoes, preferably  
1-(alpha-(chloro-alpha-cyclopropylbenzylidenamino-oxy)-p-tolyl)-3-(2,6-  
30 difluorobenzoyl)urea,  
Diflubenzuron: N-(((3,5-dichloro-4-(1,1,2,2-tetrafluoroethoxy)phenylamino)carbonyl)2,6 difluoro benzamid,  
Triflumuron: 2-Chloro-N-(((4-(trifluoromethoxy)phenyl)-amino-)carbonyl)benzamide, or a triazin, preferably N-cyclopropyl-1,3,5-triazine-2,4,6-triamin; and

- 35 Lambda-cyhalothrine:  
alpha-cyano-3-phenoxybenzyl-3-(2-chloro-3,3,3-trifluoroprop-1-enyl)-2,2-dimethylcyclopropane carboxylate, as a 1:1 mixture of (Z)-(1R,3R), R-ester and (Z)-(1S,3S), S-ester;  
40

the repellent is selected from N,N-Diethyl-meta-toluamide (DEET), N,N-diethylphenylacetamide (DEPA), 1-(3-cyclohexan-1-yl-carbonyl)-2-methylpiperine, (2-hydroxymethylcyclohexyl) acetic acid lactone, 2-ethyl-1,3-hexandiol, indalone, Methylneodecanamide (MNDA), a pyrethroid not used for insect control, preferably {(+/-)-3-allyl-2-methyl-4-oxocyclopent-2-(+)-enyl-(+)-trans-chrysantemate (Esbiothrin), a repellent derived from or identical with plant extracts, preferably limonene, eugenol, (+)-Eucamalol (1), (-)-1-epi-eucamalol or crude plant extracts from plants like Eucalyptus maculata, Vitex rotundifolia, Cymbopogon martinii, Cymbopogon citratus (lemon grass), Cymbopogon nardus (citronella), IR3535 (ethyl butylacetylaminopropionate), icaridin (1-piperidinecarboxylic acid 2-(2-hydroxyethyl)-1-methylpropylester).

niclosamide as suitable mulloscicide;

suitable rodenticides of first generation anticoagulant rodenticides and second generation anticoagulant rodenticides selected from the group consisting of warfarin, chlorphacinone, coumatetralyl as first generation anticoagulant rodenticides, and flocoumafen, brodifacoum, difenacoum, bromadiolone, difethialone, and bromethalin as second generation anticoagulant rodenticides;

antifungal agents as fungicides used in the case of athlete's foot selected from the group consisting of clotrimazole: 1-(2-chlorotriyl)imidazole, miconazole: 1-[2-(2,4-dichlorophenyl)-2-[(2,4-dichlorophenyl)methoxy]ethyl]-1H-imidazole, econazole 4-[2-[(4-chlorophenyl)methoxy]-2-(2,4-dichlorophenyl)-ethyl]-4H-imidazole, tioconazole: 1-[2-[(2-chloro-3-thienyl)methoxy]-2-(2,4-dichlorophenyl)-ethyl]-1H-imidazole, undecylenic acid, terbinafine hydrochloride: N,6,6-trimethyl-N-(naphthalen-4-ylmethyl)hept-2-en-4-yn-1-amine hydrochloride (lamisil topical), and tolnaftate: N-methyl-N-(m-tolyl)-1-naphthalen-3-yloxy-thioformamide;

further fungicides, preferably Azoles, preferably selected from Bitertanol, Bromoconazol, Cyproconazol, Difenoconazole, Dinitroconazol, Epoxiconazol, Fenbuconazol, Fluquiconazol, Flusilazol, Flutriafol, Hexaconazol, Imazalil, Ipconazol, Metconazol, Myclobutanil, Penconazol, Propiconazol, Prochloraz, Prothioconazol, Simeconazol, Tebuconazol Tetraconazol, Triadimefon, Triadimenol, Triflumizol, and Triticonazol;

Strobilurines, preferably selected from Azoxystrobin, Dimoxystrobin, Fluoxastrobin, Kresoxim-methyl, Metominostrobin, Orysastrobin, Picoxystrobin, Pyraclostrobin, and Trifloxystrobin;

Acylalanines, preferably selected from Benalaxyl, Metalaxyl, Mefenoxam, Ofurace, and Oxadixyl;

- Aminderivatives, preferably selected from Aldimorph, Dodine, Dodemorph, Fenpropimorph, Fenpropidin, Guazatine, Iminoctadine, Spiroxamin, and Tridemorph;
- 5 Anilinopyrimidines, preferably selected from Pyrimethanil, Mepanipyrin, and Cyprodinil;
- Dicarboximides, preferably selected from Iprodion, Myclozolin, Procymidon, and Vinclozolin;
- Cinnamic acid amide and analoges, preferably selected from Dimethomorph, Flumetover, and Flumorph;
- 10 Antibiotics, preferably selected from Cycloheximid, Griseofulvin, Kasugamycin, Natamycin, Polyoxin, and Streptomycin;
- Dithiocarbamates, preferably selected from Ferbam, Nabam, Maneb, Mancozeb, Metam, Metiram, Propineb, Polycarbamat, Thiram, Ziram and Zineb;
- 15 Heterocyclic compounds, preferably selected from Anilazin, Benomyl, Boscalid, Carbendazim, Carboxin, Oxycarboxin, Cyazofamid, Dazomet, Dithianon, Famoxadon, Fenamidon, Fenarimol, Fuberidazol, Flutolanil, Furametpyr, Iso-prothiolan, Mepronil, Nuarimol, Picobenzamid, Probenazol, Proquinazid, Pyrifenox, Pyroquilon, Quinoxifen, Silthiofam, Thiabendazol, Thifluzamid,
- 20 Thiophanat-methyl, Tiadinil, Tricyclazol, and Triforine
- Minorganics;
- Nitrophenylderivatives, preferably selected from Binapacryl, Dinocap, Dinobuton, Nitrophthal-isopropyl;
- Phenylpyrrole Fenpiclonil, and Fludioxonil;
- Sulfonic acid derivatives, preferably selected from Captafol, Captan,
- 25 Dichlofluanid, Folpet, and Tolyfluanid;
- Further fungicides, preferably selected from Acibenzolar-S-methyl, Benthiavalicarb, Carpropamid, Chlorothalonil, Cyflufenamid, Cymoxanil, Dazomet, Diclomezin, Diclocymet, Diclofluanid, Diethofencarb, Edifenphos, Ethaboxam, Fenhexamid, Fentin-Acetate, Fenoxanil, Ferimzone, Fluazinam,
- 30 Fosetyl, Fosetyl-Aluminium, Phosphorige Säure, Iprovalicarb, Hexachlorbenzol, Metrafenon, Pencycuron, Propamocarb, Phthalid, Toloclofos- methyl, Quintozene, and Zoxamid.
7. The insecticide or repellent composition as claimed in any of claims 1 to 6,
- 35 wherein the particle size of the insecticide and/or repellent is from 50 nm to 20  $\mu$ m, preferably 50 nm to 8  $\mu$ m, more preferably 50 nm to 4  $\mu$ m, most preferably 50 nm to 500 nm.
8. The insecticide or repellent composition as claimed in any of claims 1 to 7, further
- 40 comprising one or more component selected from water, preservatives, detergents, stabilizers, agents having UV-protecting properties, optical brighteners,

- spreading agents, anti-migrating agents, foam-forming agents, wetting agents, anti-soiling agents, thickeners, further biozides, plasticizers, adhesive agents, fragrance, pigments and dyestuffs.
- 5 9. The insecticide or repellent composition as claimed in any of claims 1 to 8, comprising from about 0.001 to 95 % by weight of the insecticide and/or repellent.
- 10 10. The insecticide or repellent composition as claimed in any of claims 1 to 9, which is provided as a kit for impregnation by the end-user or in a local factory.
- 10 11. The insecticide or repellent composition as claimed in claim 10 wherein the composition in the kit is adapted for preparing a solution or emulsion by adding water.
- 15 12. An impregnated textile material or plastics material for insect killing and/or repellence of an insect comprising  
a) at least one insecticide and/or at least one repellent, and  
b1) at least one acrylic binder as claimed in any of claims 1 to 5.
- 20 13. The impregnated textile material or plastics material as claimed in claim 10 comprising an insecticide and/or repellent as defined in claim 6.
- 25 14. The impregnated textile material or plastics material as claimed in claim 12 or 13 further comprising one or more components selected from preservatives, detergents, stabilizers, agents having UV-protecting properties, optical brighteners, spreading agents, anti-migrating agents, foam-forming agents, wetting agents, anti-soiling agents, thickeners, further biocides, plasticizers, adhesive agents, fragrance, pigments and dyestuffs.
- 30 15. The impregnated textile material or plastics material as claimed in any of claims 12 to 14 comprising from 0.001 to 10 % by weight of the weight of the textile material or plastics material of at least one insecticide and/or at least one repellent.
- 35 16. The impregnated textile material or plastics material as claimed in claim 15, comprising  
a) 0.001 to 10 % by weight, preferably 0.05 to 7 % by weight of the weight of the textile material or plastics material of at least one insecticide and/or at least one repellent, more preferably 0.1 to 6 % by weight of the weight of the textile material or plastics material of a pyrethroid as at least one insecticide and/or at least one repellent, and  
40 b1) 0.001 to 10 % by weight, preferably 0.1 to 5 % by weight, more preferably 0.2 to 3 % by weight of the weight of the textile material or plastics material of at least one acrylic binder as claimed in any of claims 1 to 5.



17. A process for impregnation of a textile material or plastics material comprising the steps
- 5 i) forming an aqueous formulation or a melt, comprising at least one insecticide and/or at least one repellent as defined in claim 6 and at least one acrylic binder as defined in any of claims 1 to 5 and optionally further ingredients;
- 10 ii) applying the aqueous formulation to the textile material or plastics material by
- 15 iia) passing the textile material or plastics material through the aqueous formulation;
- or
- 15 iib) bringing the textile material or plastics material in contact with a roller that is partly or fully dipped into the aqueous formulation and drawing the aqueous formulation to the side of the textile material or plastics material in contact with the roller;
- 20 or
- 20 iic) double-side coating of the textile material or plastics material;
- or
- 20 iid) spraying the aqueous formulation onto the textile material or plastics material; wherein the spraying is carried out with any suitable device for spraying by hand or automatically, for example with an aerosol can or devices usually used in a factory;
- 25 or
- 25 iie) applying the aqueous formulation in form of a foam;
- or
- 30 iif) submerging the textile material or plastics material into the aqueous formulation;
- or
- 30 iig) brushing the aqueous formulation onto or into the textile material or plastics material;
- or
- 35 iih) pouring the aqueous formulation onto the textile material or plastics material;
- or
- 35 applying the melt by calendering or with a doctor-blade;
- 40 iii) optionally removing surplus aqueous formulation or surplus melt; and
- 40 iv) drying and/or curing the textile material or plastics material.

- 5 18. The process as claimed in claim 17, wherein step iia) is carried out by completely submerging the textile material or plastics material in the aqueous formulation either in a trough containing the aqueous formulation or passing the textile material or plastics material through the aqueous formulation which is held between two horizontally oriented rollers.
19. The process as claimed in claim 17 or 18, wherein the insecticide and/or repellent is an insecticide and/or repellent as defined in claim 6.
- 10 20. The process as claimed in any of claims 17 to 19, wherein the aqueous formulation further comprises one or more ingredients selected from the group consisting of detergents, stabilizers, agents having UV-protecting properties, optical brighteners, spreading agents, anti-migrating agents, preservatives, foam-forming agents, wetting agents, thickeners, further biozides, plasticizers, adhesive agents, anti-soiling agents, fragrance, pigments and dyestuffs.
- 15 21. The process as claimed in any of claims 17 to 20, wherein the dyeing of the textile material or plastics material is carried out simultaneously with the impregnation of the textile material or plastics material, wherein an aqueous formulation is formed further comprising at least one dyestuff and/or at least one pigment.
- 20 22. A process for coating a textile material or plastics material by applying a composition comprising at least one insecticide and/or at least one repellent and at least one acrylic binder as defined in any of claims 1 to 5 to the textile material or plastics material.
- 25 23. The process as claimed in claim 22, wherein the composition further comprises one or more ingredients selected from the group consisting of detergents, stabilizers, agents having UV-protecting properties, optical brighteners, spreading agents, anti-migrating agents, preservatives, foam-forming agents, anti-soiling agents, wetting agents, thickeners, further biozides, plasticizers, adhesive agents, fragrance, pigments and dyestuffs.
- 30 24. The impregnated textile material or plastics material as claimed in any of claims 12 to 16, wherein the textile material or plastics material is a netting made from polyester, especially polyethylene terephthalate.
- 35 25. The insecticide or repellent composition as claimed in any of claims 1 to 11, additionally comprising a fixative agent.
- 40

26. The insecticide or repellent composition as claimed in claim 25, wherein the fixative agent is an isocyanurate comprising free isocyanate groups, preferably an isocyanurate based on alkylene diisocyanates having from 4 to 12 carbon atoms in the alkylene unit, like 1,12-dodecane diisocyanate, 2-ethyltetramethylene diisocyanate-1,4, 2-methylpentamethylene diisocyanate-1,5, tetramethylene diisocyanate-1,4, lysinester diisocyanate (LDI), hexamethylene diisocyanate-1,6 (HMDI), cyclohexane-1,3-and/or-1,4-diisocyanate, 2,4-and 2,6-hexahydro-toluylene diisocyanate as well as the corresponding isomeric mixtures 4,4'-2,2'-and 2,4'-dicyclohexylmethane diisocyanate as well as the corresponding mixtures, 1-isocyanato-3,3,5-trimethyl-5-isocyanatomethyl cyclohexane (IPDI), 2,4-and/or 2,6-toluylene diisocyanate, 4,4'-, 2,4' and/or 2,2'-diphenylmethane diisocyanate (monomeric MDI), polyphenylpolymethylene polyisocyanate (polymeric MDI) and/or mixtures comprising at least 2 of the isocyanates mentioned before, more preferably the isocyanurates are based on hexamethylene diisocyanate-1,6 (HMDI);
- wherein the isocyanurate is in a preferred embodiment hydrophilized with a polyalkylene oxide based on ethylene oxide and/or 1,2-propylene oxide, preferably polyethylene oxide.
27. The insecticide or repellent composition as claimed in claim 26, wherein the fixative agent is an isocyanurate based on HMDI which is hydrophilized with a polyethylene oxide and which is dissolved in propylene carbonate (70 % by weight of HMDI in 30 % by weight of propylene carbonate), wherein the amount of free isocyanate groups is 11 to 12 % by weight, based on the amount of isocyanate used as starting material for the preparation of the isocyanurate.
28. The insecticide or repellent composition as claimed in any of claims 25 to 27 comprising the following components, based on the solids content of the composition:
- a) 20 to 70 % by weight, preferably 25 to 65 % by weight, more preferably 30 to 65 % by weight of at least one insecticide and/or at least one repellent (component A), and
  - b1) 29 to 72 % by weight, preferably 34 to 70 % by weight, more preferably 33 to 66 by weight of at least one acrylic binder (component B1) as defined above, comprising;
    - b1a) 10 to 90% by weight, preferably 15 to 80% by weight, more preferably 20 to 70% by weight based on the acrylic binder of n-butyl acrylate (component B1A);



- b1b) 10 to 90% by weight, preferably 12 to 85% by weight, more preferably 15 to 65% by weight based on the acrylic binder of at least one monomer of formula I (component B1B);
- 5 b1c) 1 to 5 % by weight based on the acrylic binder of at least one monomer of formula II (component B1C);
- b1d) 0 to 5 % by weight, preferably 1 to 4 % by weight, more preferably 0.2 to 3% by weight based on the acrylic binder of at least one monomer of formula III (component B1D);
- 10 b1e) further monomers which are copolymerizable with the monomers mentioned (component B1E) above selected from
- b1e1) 0 to 30 % by weight, preferably 0 to 25 % by weight, more preferably 5 to 20 % by weight based on the acrylic binder of at least one polar monomer, preferably (meth)acrylic nitrile and/or methyl(meth)acrylate (component B1E1); and/or
- 15 b1e2) 0 to 40 % by weight, preferably 0 to 30 % by weight, more preferably 5 to 20 % by weight based on the acrylic binder of at least one non polar monomer, preferably styrene and/or *o*-methylstyrene (component B1E1);
- 20 c) 1 to 8 % by weight, preferably 1 to 5 % by weight, more preferably 2 to 4 % by weight of at least one fixative agent (component C);
- wherein the sum of the components is 100 % by weight of solids content of the insecticide composition.
- 25 29. The process as claimed in any of claims 17 to 23, wherein step iv) is carried out at 60 to 170 °C.
- 30 30. The insecticide and/or repellent composition as claimed in claim 5, wherein the textile material or plastics material is a polyester netting material.
31. The insecticide and/or repellent composition as claimed in claim 5 or 30, wherein the component A is *alpha*-Cypermethrin.
- 35 32. The insecticide and/or repellent composition as claimed in any of claims 5, 30 or 31, comprising:
- a) 6.4 g/L to 16 g/L of *alpha*-Cypermethrin as component A,
- b1) 10 g/L to 16.7 g/L of an acrylic binder as claimed in claim 5 as component B1,
- 40 c) 0 g/L to 0.83 g/L, preferably 0.5 g/L to 0.83 g/L of a fixative agent which is an isocyanurate based on HMDI which is hydrophilized with a polyethylene

5 oxide and which is dissolved in propylene carbonate (70 % by weight of HMDI in 30 % by weight of propylene carbonate), wherein the amount of free isocyanate groups is 11 to 12 % by weight, based on the amount of isocyanate used as starting material for the preparation of the isocyanurate, as component C,

and  
water.

- 10 33. An impregnated polyester netting material comprising
- a) 0.32 to 1.6 % by weight of the weight of the polyester netting material of al-pha-Cypermethrin as component A,
  - b1) 1 to 1.5 % weight of the weight of the polyester netting material of an acrylic binder as claimed in claim 5 as component B1.